REMARKS

This application is believed to be in condition for allowance at the time of the next Official Action.

The Official Action rejects claim 5 under 35 USC §112, second paragraph, as being indefinite. Underlying this rejection is the term "parametric X-radiation". Applicant respectfully suggests that this term is very well known to one of skill in the art of X-ray imaging. Sometimes referred to as PXR, it is known to be the Bragg scattering of virtual photons associated with the Coulombic field of relativistically charged particles interacting with the atomic planes of a crystal. This can be found from numerous sources, including the attached print of a website that offers the definition cited above.

For at least these reasons, reconsideration and withdrawal of this rejection are respectfully requested.

The Official Action rejects claim 20 under 35 USC §112, first paragraph, as failing to comply with the enablement requirement. The determination of whether sufficient information is provided to enable one of skill in the art to make or use an invention is made from the perspective of one of skill in the art. Applicant respectfully suggests that one of skill in the art of X-ray imaging could readily avail himself of the information required to take a plurality of phase contrast images of an object in order to generate a computer tomogram of the

object. Reconsideration and withdrawal of this rejection are therefore respectfully requested.

The Official Action rejects claims 1 and 4-20 under 35 USC §103(a) as being unpatentable over DAVIDSON. Reconsideration and withdrawal of this rejection are respectfully requested for the following reasons:

Of the rejected claims, claims 1 and 12 are independent. Each of such independent claims recites, among other features, an X-ray source. Additionally, the X-ray source has a line-shaped focus. The longitudinal extension of the line-shaped focus is specifically recited as being aligned in a direction towards the object.

This relationship of the line-shaped focus 7 and the object 4 is illustrated, for example, in present Figure 1. Moreover, this feature of the present invention is entirely absent from not only the applied DAVIDSON reference, but all other prior art known to the applicant.

In fact, the applied DAVIDSON reference teaches nothing more than apparatus and an associated method for producing a line-shaped X-ray beam. The reference offers absolutely nothing, however, in terms of how the line-shaped X-ray beam would be used to produce a phase contrast image of an object, let alone how the line-shaped X-ray beam should be oriented with respect to such object.

The DAVIDSON device refers to an "object plane" (identified as element 6 in the drawing figures but referred to as element 7 in the text of the reference). However, the object plane is little more than a frame of reference that can be used to explore the relative proportions of the beam as it exists at the position of the target plane in comparison to its condition after having reflected off the X-ray mirror. Accordingly, the reference cannot possibly teach the recited relationship between the line-shaped focus of the X-ray source and the object that is being scanned.

The shortcomings of the DAVIDSON reference are highlighted by the Official Action's characterization of such reference as disclosing an X-ray source, an object, and an evaluation unit, without the identification of any of such elements other than the X-ray line source. This results from the very nature of the reference, in that it teaches nothing whatsoever other than the basic science of generating a line-focus X-ray beam.

In light of the failure of the reference to teach or suggest the full set of features recited explicitly in the independent claims and implicitly in the claims that depend therefrom, applicant respectfully suggests that the present rejection cannot be maintained.

In light of the amendments provided above and the arguments offered in support thereof, applicant believes the

present application is in condition for allowance and an early indication of the same is respectfully requested.

If the Examiner has any questions or requires further clarification of any of the above points, the Examiner may contact the undersigned attorney so that this application may continue to be expeditiously advanced.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON

Eric Jensen, Reg. No. 37,855
745 South 23rd Street
Arlington, VA 22202
Telephone (703) 521-2297
Telefax (703) 685-0573
(703) 979-4709

EJ/lrs

APPENDIX:

The Appendix includes the following item:

- a website printout defining "parametric X-radiation"

Parametric X-Radiation From Mosaic Graphite: New Results and Reconciliation of Previous Experiments

Authors: James E. Barrows; NAVAL POSTGRADUATE SCHOOL MONTEREY CA

Abstract: This thesis explores the effects of mosaic graphite on the yield of parametric x-radiation (PXR). PXR is the Bragg scattering of virtual photons associated with the Coulombic field of relativistically charged particles interacting with the atomic planes of a crystal. PXR was measured from three samples of mosaic graphite crystals with differing mosaicities. The number of photons per electron was calibrated with the fluorescent x-ray yield from a thin silver foil backing on each of the mosaic crystals. The detector angular field of view was narrowed from previous experiments. Improvements were made in the re-analysis of previous experiments by considering the thick target effects of the x-ray absorption. Previous experiments had erroneously assumed that the calibration fluorescent targets were thin. Re-analysis of previous data using corrections for solid angle, crystal absorption factors and effective thickness resulted in yields similar to those obtained in this work.

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- CHARGED PARTICLES
- CRYSTALS
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- GRAPHITE
- MATRIX MATERIALS
- PHOTONS
- RADIATION ABSORPTION
- SAMPLING
- SILVER
- THESES
- THINNESS
- X RAY ABSORPTION ANALYSIS
- X RAY SCATTERING